

USSR

MEL'NICHENKO, I. V., et al., *Ukrainskiy Khimicheskiy Zhurnal*, Vol 38, No 11, 1972, pp 1152-1155

p-aminophenol) shows a sharp maximum in the reaction rate in the pH 5-7 range. The second (aniline, o- and m-phenylenediamine, O-aminophenol, p-nitroaniline) show only a slight maximum in reaction rate in the pH < 7 range. The third group (alpha-aminopyridine, N,N diethyl-p-phenylenediamine, p-nitrophenol, quinone, hydroquinone), like the buffer salts show little if any significant catalytic activity. Thus, the most effective catalysts are p-phenylene diamine and p-aminophenol. The end of the hydrolysis is due to the formation of dihydroxyacetone phosphate. The rate of hydrolysis is directly proportional to the concentration of p-phenylenediamine, with addition of acetate, pyridine, and aniline showing no effect on the reaction rate in the presence of p-phenylenediamine.

p-Phenylenediamine and p-aminophenol sharply differ from other catalysts studied not only in the rate of catalysis but also in the very shape of their curve of reaction rate dependence on pH. This specific catalysis appears to be manifested only in the para structure. Thus the action of these catalysts is connected with their formation of quinoid intermediates. The lack of

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USSR

MEL'NICHENKO, I. V., et al., *Ukrainskiy Khimicheskiy Zhurnal*, Vol 38, No 11, 1972, pp 1152-1155

catalysis by o-substituted amines is explained by the instability of the o-quinoid intermediates. A scheme for quinone formation via hydride ion transfer is given. At $\text{pH} > 5.9$ the reaction rate is limited by the rate of acid-catalyzed dehydration. At lower pH levels hydrolysis rate is lowered due to protonation of the amine. The existence of a reaction rate dependence on pH rules out quinone formation as a limiting factor in FGA hydrolysis. The catalytic activity of aniline and other similar catalysts in FGA hydrolysis is similar to the catalytic activity of butylamine.

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USSR

UDC 547.26.418

SEMENYUK, I. I., VOLKOVA, N. V., and YASNIKOV, A. A., Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Products of Acetol Phosphorylation by Phosphorus Oxychloride in Quinoline"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol XXXVII, No 5, 1971, pp 451-453

Abstract: The experimental procedure and results of acetol phosphorylation by phosphorus oxychloride in quinoline are described. The properties of the pyrophosphates of the dimer form of acetol are described, and the phosphorylation products are determined to be 2,5-dimethyl-2,5-dioxodioxane-1,4 mono and dipyrophosphates and acetolphosphate. It was discovered that the phosphorylated products decompose with splitting of the inorganic pyrophosphate when held with sulfoacid cation-exchange or ion-exchange resins. The inorganic pyrophosphate formed is identified by the paper chromatography method. The absence of a carbonyl group in the compound and the formation of the hydrazine of the corresponding methylglyoxal osazones leads to the identification of the product.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FORMATION OF A CHARGE TRANSFER COMPLEX DURING THE REACTION OF
1,BENZYL,3,CARBAMOYL PYRIDINIUM CHLORIDE WITH THIOCYANATE ION -U-
AUTHOR--(03)-UZIYENKO, A.B., VOLOSHCHUK, V.YE., YASNIKOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--UKR. KHIM. ZH. 1970, 36(4), 367-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THIOCYANATE, BENZENE DERIVATIVE, PYRIDINE, CHLORIDE, COMPLEX
COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----F070/605019/C02 STEP NO--UR/0073/70/036/004/0367/0368
CIRC ACCESSION NO--AP0140915
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140915

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIOCYANATE FORMS A CHARGE
TRANSFER COMPLEX WITH 1-BENZYL-3-CARBAMOYLPIRIDINIUM CHLORIDE IN ALL THE
SOLVENTS INVESTIGATED. NO ADDN. TO FORM A DIHYDRONICOTINAMIDE DERIV.
WAS OBSD. THE FOLLOWING DATA ARE REPORTED SOLVENT, LAMBDA IN NM, E SUBT
EQUALS H SUBNU IN KCAL-MOLE NEGATIVE PRIME1, Z IN KCAL-MOLE, EXTINCTION
COEFF. IN L.-MOLE NEGATIVE PRIME1 CM NEGATIVE PRIME1, FORMATION CONST.
IN L.-MOLE NEGATIVE PRIME1 GIVEN. (FORMULAS SHOWN ON MICROFICHE).
FACILITY: INST. ORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 591.1

NEFEDOV, V. P., SAMOYLOV, V. A., KUDYAKOVA, N. N., DUBYNIN, V. N., PETUSHKOV, V. N., YASNIKOV, I. L., MIKHAYLOV, V. I., and KHRUSTALOV, V. F., Institute of Physics imeni L. V. Kirenskiy, Siberian Department USSR Academy of Sciences

"Culturing Bone Marrow in Vitro by the Method of Isolated Organ Perfusion"

Moscow, Izvestiya Akademii Nauk SSSR, No 2, Mar/Apr 71, pp 179-191

Abstract: The role played by the bone marrow in maintaining normal erythron series was studied. Blood was perfused through the isolated sternum by means of a pumping and oxygenating system which automatically regulated the perfusion pressure, pO_2 , HbO_2 , pH, and temperature of the perfused blood, partly in response to the feedback information on pO_2 , temperature, and impedance received from the bone marrow. Best results were obtained when the circulating blood was completely exchanged after 12 hours of perfusion. The maximum duration of perfusion was 20 hours. Histological examination of the sternum performed after 6, 11, and 17 hours of perfusion revealed a shift in the leukoerythroblast ratio toward the red series and a normal maturation of erythrocytes and granulocytes.

1/1

USSR

UDC 547.558.1

AKHMEDZADE, D. A., YASNOPOL'SKIY, V. D., and GUSEYNOVA, M. M.

"Synthesis of Some α -Thienylphosphinite Esters"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 8, Aug 71, pp 1701-1702

Abstract: A series of new α -thienylphosphinous acid esters was obtained by the reaction of α -thienyldichlorophosphine with phenol and alkylphenols.

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USSR

UDC 619:615.451.35

YASNYKH, V. S.

Aerzoli v Veterinari (Aerosols in Veterinary Medicine), Moscow, Kolos Publishing House, 1972, 353 pp.

Translation: Table of Contents:

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USSR

YASNYKh, V. S., Aerosoli v Veterinariii, 1972, 353 pp

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USSR

UDC [537.226+537.311.33].01

GEL'MONT, B. L., and YASSIYEVICH, I. N.

"Interaction of Hot Electrons With Optical Phonons"

V sb. Materialy 6-y Zimney shkoly po teorii yadra i fiz. vysok. energii, 1971, Ch. 3 (Materials of Sixth Winter School on Nuclear Theory and High-Energy Physics, 1971, Part 3 -- Collection of Works), Leningrad, 1971, pp 55-64 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1033)

Translation: Optical phonons are described by means of a phenomenological model which takes into consideration electric field influence on ion displacement. The probabilities of electron transitions (with phonon absorption or emission) are calculated, and these are used to record electron relaxation time (e.g., for an electron thrown high into the conduction band). The authors also calculate the per-unit volume power loss of electrons in a certain steady-state distribution.

1/1

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1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ROLE OF CLIMATOTHERAPY IN THE COMPLEX HEALTH RESORT TREATMENT OF
PATIENTS WITH CHRONIC GASTRITIS AT THE SOUTHERN COAST OF THE CRIMEA -U-
AUTHOR--YASTREB, N.I.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 132-136
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DIGESTIVE SYSTEM DISEASE, CLIMATIC INFLUENCE, DIET, EXERCISE,
MINERAL, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1598 STEP NO--UR/0475/70/000/004/0132/0136
CIRC ACCESSION NO--AP0127089
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127089

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HIGH EFFICIENCY IS REPORTED OF TREATMENT OF 180 PATIENTS (MALES, 110; FEMALES, 70; AGE, 20-50 YEARS) AT HEALTH RESORTS OF THE SOUTHERN COAST OF THE CRIMEA. COMPLEX HEALTH RESORT AND CLIMATIC TREATMENT INCLUDED A PLANNED REGIMEN, DIET SPECIAL MEDICAL EXERCISE, ORALLY TAKEN YALTA MINERAL WATER AS WELL AS DIFFERENT ACTIVE CLINICO THERAPEUTIC METHODS. IMMEDIATE AND LATE RESULTS SUGGEST THAT SUCH TREATMENT IS NOT INFERIOR TO TREATMENT AT SPECIAL BALNEOLOGICAL HEALTH RESORTS.

USSR

UDC 62-5:681.3-19

SOLYANIK, B.L. and YASTREBENETSKIY, M.A.

"The Occurrence of Failures in Automatic Systems When There is Random Switching Off of Equipment"

Moscow, Avtomatika i Telemekhanika, No 12, 1970, pp 68-76

Abstract: While investigating the reliability of automatic systems to monitor and control large power engineering complexes consisting of boilers and turbines, the authors developed failure models which are applicable to these systems and to other industrial complexes where large portions of the equipment being controlled are switched off at random moments of time. The following assumptions were made: 1) all the automatic systems of the complex are switched on and off simultaneously: that is, the failure rates of all component systems are subject to abrupt changes at the same moment of time; 2) the lengths of T' , the operating time, and T'' , the downtime of the complex, are independent random variables having continuous distribution functions with finite means and variances; 3) the inspection of the occurrence of failures begins at some moment in time which is infinitely remote from the moment at which the complex

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USSR

SOLYANIK, B.L. and YASTREBENETSKIY, M.A., Moscow, Avtomatika i Telemekhanika, No 12, 1970, pp 68-76

was first turned on. The authors used a model of a Poisson process to describe the occurrence of failures. They obtained the distribution of the number of failures when the equipment being controlled is switched off randomly, as was previously specified, and they also discuss a model which describes the occurrence of failures when the complex is also subjected to other random external factors whose effect on the occurrence of failures may be equal or even greater.

2/2

USSR

UDC 519.21

RYKOV, V. V., YASTREBENETSKIY, M. A.

"Regenerating Processes with Several Types of Regeneration Points"

Bol'shiye Sistemy. Massovoye Obsluzh. Nadezhnost' [Large Systems. Queueing. Reliability -- Collection of Works], Moscow, Nauka Press, 1970, pp 203-208
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V82 by B. Sevast'yanov).

Translation: A class of regenerating processes with several types of regeneration points is defined. This class of processes naturally generalizes recurrent events introduced by Feller, and regenerating Smith processes. It is demonstrated that particular cases of these processes include semi-Markov processes and alternating regenerating processes. A theorem is proven concerning the limiting expression for probability that the process in question will be in some fixed set as $t \rightarrow \infty$.

1/1

Industrial

USSR

UDC: 669.17

YASTREBKOV, A. A. and LAKEYENKOV, V. M.

"Preparation and Structure of the Bicrystals of Refractory Metals"

Moscow, Pribery i tekhnika eksperimenta, No 1, 1973, pp 235-236

Abstract: A method is proposed of simplifying the procedure for obtaining bicrystals of a refractory metal -- molybdenum is the example chosen in this article -- and improving the quality of the boundary between crystals. The process begins with a rod of monocrystals obtained from a zone melt furnace; one part of the rod is twisted with respect to the other, and the whole then allowed to cool. The processing and seeding are thus avoided along with the complications of a welded joint. The method was used for obtaining bicrystals of W and Mo, using monocrystalline rods of 10-15 mm in diameter fixed in a vertical position in an electron-beam smelter. A description of this procedure is given. The article is illustrated with photographs showing a molybdenum rod with three bicrystals, and the substructure in the intercrystalline boundary region. The authors thank B. A. Oplesnin, V. P. Lubents, V. N. Chechentsev, and Yu. I. Stolyarov for their cooperation in developing the method.

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Single Crystals

USSR

UDC 669.28:559.374

YASTREBKOV, A. A., OPLESNIN, B. A., LUBENETS, V. P., KOSYREV, Yu. N., and
~~TAKUTOVICH, M. V.~~

"The Annealing of Plastically Bent Molybdenum Single Crystals"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 843-848

Abstract: Structural changes and kinetics of polygonization by annealing plastically bent single crystals of molybdenum of four orientations were investigated by X-ray and metallographic methods. It was found that the deformation character depends on the crystal orientation. Kinetics of substructural changes by isothermal annealing in the temperature interval of 1700°C to 2500°C and the extinguishing character of the growth of polygons are discussed. The investigation results are analyzed by reference to microstructures, topograms, and the established dependence of the change of the orientation angle of neighboring blocks on the aging time by isothermal annealing. Four illustr., five biblio. refs.

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USSR

UDC: 533.95:537.84

YASTREBOV, A. A.

"On the Theory of Perturbation of the Lower Ionosphere by a Metal Body"

Tr. Tsentr. aerol. observ. (Works of the Central Aerological Observatory), 1972, vyp. III, pp 35-43 (from RZh-Fizika, No 6, Jun 73, abstract No 6G41)

Translation: The author investigates the problem of perturbation of a dense, weakly ionized plasma by a stationary charged body of spherical shape. It is shown that as a consequence of the large number of collisions of charged particles with atoms and molecules of neutral gas, the depleted concentration zone is considerably greater than the Debye layer and the dimensions of the body (depletion effect). Thus, making probe measurements in the lower ionosphere involves accounting for the plasma depletion in the vicinity of the probe due to charging of the rocket hull and of the probe itself.

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USSR

UDC 621.372.852.6

YASTREBOV, A. E.

"Microwave Currents of Cylindrical Rods Included in a Wave Guide Step-up Transformer"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 108, pp 42-45 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No 7B138)

Translation: A study is made of a step-up microwave transformer constructed on the basis of a prismatic wave guide resonator which is formed by a regular wave guide and inductive commutator bars with the inclusion of metal rods of cylindrical shape in the side wall of the resonator. The possibility of calculating the transformer by the relations for a regular prismatic resonator is investigated. Accordingly, the transformation coefficient of the investigated signal is studied experimentally. There are 2 illustrations and a 3-entry bibliography.

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USSR

UDC 62-50

MAKAROV, I. M., OZERNOY, V. M., and YASTREBOV, A. P. (Moscow)

"Acceptance of a Solution in Selecting a Variant of a Complex Automatic Control System"

Moscow, Avtomatika i Telemekhanika, No 3, 1971, pp 84-90.

Abstract: A methodology is proposed for the acceptance of an alternative solution in the selection of the most preferred variant of an automatic system. The methodology is based on the theory of additive utility. The procedure is demonstrated. This involved the development of five types of automatic control systems by three different organizations: 1) linear automatic control system, 2) self-tuning automatic control system with stability boundary control, 3) self-tuning automatic control system with frequency characteristic control, 4) automatic control system with variable structure, and 5) relay-type automatic control system. A table of utility function values is given for each alternate solution. However, since the difference between no. 2 and 4 comprised only five percent of the total scale of utility, the authors conclude that additional research on the two systems is necessary. Subsequent experimental research resulted in the selection of no. 4. The original article has three figures, nine tables, five formulas, and three bibliographic entries.

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USSR

UDC 62-50

MAKAROV, I.M., OZERNOY, V.M. and YASTREBOV, A.P., Moscow

"Selection of Principle for Construction of Complex Automatic Control System
Based on Expert Evaluations"

Moscow, Avtomatika i Telemekhanika, No 1, 1971, pp 128-137

Abstract: A method is described for using a group of experts to select the most preferable principle for the construction of a complex automatic control system during the planning process. An example of the application of the method in the study of a complex system is presented. The method consists of rank correlation, in which each expert ranks alternative solutions on the basis of all characteristics according to his own preferences. Formulas are presented for the total evaluation of each version.

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USSR

UDC 577.1:615.7/9

ARETINSKIY, B. V., YASTREBOV, A. P., KHAMIDULLIN, A. F., and SYRNEV, V. A.

"Changes in Protein Synthesis and Bioenergetics in Rat Lung Tissue After Exposure to a Combination of Quartz Dust and Diesel Exhaust Gases"

Tr. Tsentr. n.-i. proyekt.-konstrukt. in-ta profilakt. pnevmonokoniozov i tekhn. bezopasn. (Works of the Central Research and Design Institute for the Prevention of Pneumoconiosis and Accidents), 1971, No 5, pp 117-122 (from RZh-Biologicheskaya Khimiya, No 24, Dec 72, Abstract No 24 F2270)

Translation: Exposure of rats treated with quartz dust to diesel exhaust gases for 1 month resulted in slight stimulation of the energy processes in lung and liver mitochondria and preservation of the normal level of incorporation of $1-C^{14}$ -glycine into the proteins of these tissues. Exposure to the gases for 3 months markedly reduced both the intensity of the energy processes in the mitochondria and the incorporation of glycine into the proteins of liver and lung tissues.

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USSR

UDC 613(470)(091)

SHITSKOVA, A. P., AKSYUK, A. F., REYLITS, G. A., GHOMEVAYA, V. L., GUSEV, M. I.,
ZHILIN, P. N., KOTKIN, Ye. L., PAL'TSEV, Yu. P., and YASTREPOV, G. G.

"Coping With Current Health Problems in the RSFSR"

Moscow, Gigiyena i Sanitariya, No 12, 1972, pp 8-16

Abstract: Health problems were a major concern of the communist leaders after the revolution who swiftly organized agencies and services to deal with epidemics and famines. As these were brought under control, health officials became involved in city planning, design and building of houses, etc. The increasing tempo of industrialization led the authorities by the 1930's to study atmospheric pollution and the disposal of municipal and industrial sewage. Water pollution and suitable use of water resources were major interests by the 1940's. Following the war, industrial hygiene and occupational diseases along with food poisonings became the center of attention. In the 1960's research was focused on the problems created by the chemicalization of agriculture, the use of pesticides in particular. The effects of exposure to ultrasound, radiation, microwaves, and other technological advances are now under study. Much stress is placed on preventive medicine, with frequent mass check-ups of the population, particularly children and adolescents. The importance of

USSR

SHITSKOVA, A. P., Gigiyena i Sanitariya, No 12, 1972, pp 8-16

comprehensive, accurate health statistics was recognized in the 1920's and they are constantly being refined and improved as an indispensable basis for planning and taking effective action.

2/2

USSR

UDC: 621.438:621.45:

YAZIK, A. V., KRUCHAN, I. S., YASTREBOV, L. A., REZNIKOV, V. S.

"The GTU-2000 -- a Promising Mobile Gas Pumping Installation"

Tr. Ukr. NII prirod. gazov (Works of the Ukrainian Scientific Research Institute of Natural Gases), 1970, vyp. 4(8), pp 315-318 (from RZh-Turbo-stroyeniye, No 5, May 71, Abstract No 5.49.68)

Translation: The Ukrainian Scientific Research Institute in cooperation with the Leningrad Administration of Gas Mains has developed a pilot model of the GTU-2000 gas-pumping unit based on the AI-20 aircraft engine and the 102-11-1 forcing gas pump. The AI-20 engine is a single-shaft unit with a rating of 3675 hp at a turbocompressor speed of 12,300 rpm. The engine has an axial ten-stage compressor, $\pi_K = 7.5$. The turbine is a three-stage reaction unit. The gas temperature following the turbine is no more than 500°C. The modified engine weighs about one ton. The 102-11-1 is a centrifugal pump with a single stage, $\pi_H = 1.31$, power consumption is 1720 kW, gas flow under suction conditions is $Q = 75$ cu. m. per min, and forcing pressure is $p_H = 56$ kg/cm².

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USSR

UDC: 621.391:519.2

YASTREBOV, V. A.

"Effect Which a Circuit With Nonlinear Phase Response has on a Signal"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 40, pp 74-77 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A57)

Translation: The author considers a circuit whose phase characteristic has first-order nonlinearity. The amplitude response in the frequency band of the signal is assumed to be sufficiently linear, and it is disregarded. It is shown that when the signal passes thorough this circuit, each spectral component of the signal receives an additional time delay proportional to the frequency of the spectral component, so that the signal is expanded in time relative to the frequency axis. An expression is derived which determines the effect of the circuit on the signal in the general case where the circuit has a uniform amplitude characteristic and an arbitrary phase response. N. S.

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USSR

UDC: 621.391.519.2

YASTREBOV, V. A.

"A Signal for Systems With Pulse Compression Which is Optimum From the Standpoint of Power Conditions and Compressed Pulse Shape"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1970, vyp. 40, pp 78-84 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No LA73)

Translation: If the process of signal compression is considered from the standpoint of the theory of optimum reception, a filter which gives the maximum signal-to-noise ratio at the output can in principle be matched to a predetermined signal shape. However, this involves considerable technical difficulties, and in practice it is necessary to solve the reverse problem -- with a given filter (dispersion delay line with quadratic phase characteristic) to select a signal with a shape close to optimum. The procedure for such selection is demonstrated as well as practical realization of signal shaping circuits. Four illustrations. N. S.

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USSR

UDC 616.891.71

YASTREBOV, V. K., Omsk Scientific Research Institute Infections with Natural Foci, Omsk

"Epidemiological Significance of Foci of North Asian Tickborne Rickettsiosis of Various Landscape Types in Altay Kray"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 22-26

Abstract: During 1942-67, 4,645 cases of tickborne rickettsiosis (0.7-19.1 cases per 100,000 population or 60-300 cases per yr) were recorded in Altay Kray. Natural foci of tickborne rickettsiosis are widespread there, the disease is also endemic in the majority of adjacent oblasts and republics. Four principal landscape types of natural foci were found: steppe, forest-steppe, mountain-steppe, and semi-desert types. It was established that Ixodid ticks of five species, *Dermacentor marginatus*, *D. pictus*, *D. nuttalli*, *D. silvarum*, and *Haemaphysalis concinna*, transmit the disease. Of principal epidemiological importance are the mountain-steppe (Central Altay) and northern forest-steppe foci, as indicated by the incidence of cases and the frequency of acquired immunity according to the results of allergic skin tests. Reservoirs of infection are formed by *D. nuttalli*, in the mountain-steppe areas

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USSR

YASTREBOV, V. K., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
Vol 48, No 4, Apr 71, pp 22-26

and *D. marginatus*, *D. pictus*, and *D. silvarum* in forest-steppe areas. The danger of infection in the Central Altay region is increased by the combined presence there of foci of tickborne rickettsiosis and tickborne encephalitis. Tickborne encephalitis is transmitted by *Ixodes persulcatus* which inhabits the forests of the mountainous area of Central Altay. Combined occurrence of foci of both types of infection was also established in the forest-steppe zone.

2/2

YASTREBOV, V. S.

31 Jan 72

112

PPD: CYBERNETICS

98. USSR

UDC: 621.83

SMIRNOV, A. V., YASTREBOV, V. S.

"Modeling Kinetic Functions of the Human Hand"

Moscow, Mekhanika Mashin, No 27-28, 1971, pp 161-165

Abstract: The reason for this study of the motions of the human hand is that it can form the basis for perfection of manipulators. The authors investigate the principles of hand movements and show how the laws of their control can be modeled. A servomechanism using two motors can be used as the analogy of the synergistic and antagonistic muscles, and the proper mode of operation can be attained by controlling the applied voltage. The authors discuss research conducted over several years at the Institute of Oceanology Imeni P. P. Shirshov, USSR Academy of Sciences, on the application and perfection of electrohydraulic systems of control of undersea copying manipulators operating in a broad pulse modulating mode. The circuit diagram of a source of periodic square pulses for converting a continuous input signal into a series of time-modulated pulses for such systems is shown and its operation discussed. The authors conclude that these manipulators can be improved by studying the human hand and by modeling its operation.

1/1

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REACTION OF TRIMETHYLMETHOXYLANE WITH TITANIUM TETRACHLORIDE -U-
AUTHOR--(02)-YASTREBOV, V.V., CHERNYSHEV, A.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 604-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TITANIUM CHLORIDE, ORGANIC SILANE, EVAPORATION, ORGANOTITANIUM
COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0871 STEP NO--UR/0079/70/040/003/0604/0605
CIRC ACCESSION NO--AP0124534
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--APC124534

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 3 ML 0.38 M TICL SUB4-CCL SUB4
WAS ADDED 2.37 ML 0.479 M ME SUB3 SIOME-CCL SUB4 TO GIVE, AFTER EVAPN.
IN VACUO AT ROOM TEMP., MEOTICL SUB3, DECOMP. 94-6DEGREES. SIMILARLY
WAS OBTAINED (MEQ) SUB2 TICL SUB2; BOTH ARE HYDROLYZED ON CONTACT WITH
AIR. NO COMPLEXES OF THESE PRODUCTS WITH ME SUB3-SIOME WERE DETECTED.
THE REACTION MAY BE ALSO RUN IN CYCLOHEXANE. FACILITY: INST.
TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.313.2:547.341

PUDOVIK, A. N., and YASTREBOVA, G. Ye., Kazan' State University

"Reaction of Trialkylphosphites With α -Bromovinylphosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 7, Jul 73, pp 1647-1648

Abstract: Heating the diethyl ester of α -bromovinylphosphonic acid with a small excess of trimethyl- or triethyl phosphite yields 1-dimethoxyphosphone-2-diethoxyphosphone-ethylene, and 1,2-diethoxyphosphone-ethylene.

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USSR

UDC 547.341

PUDOVIK, A. N., ~~YASTREBOVA, G. YE.~~, CHERKOSOVA, O. A.

"The Reactions of Condensation and Addition of the Diethyl Ether of Carbamoylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 88-90

Abstract: It has been demonstrated [A. N. Pudovik, et al., DAN SSSR, No 90, 799, 1953; A. N. Pudovik, et al., ZhOKh, No 36, 1232, 1966] that organophosphorus compounds with an active methylene radical -- the diethyl esters of cyanomethyl, acetomethyl and carboethoxymethylphosphonic acids -- easily enter into the reaction of condensation with aldehydes under the conditions of basic catalysis. As a continuation of this research, a study was made of analogous reactions with the diethyl esters of carbamoylmethylphosphonic and carbalkoxymethylphosphonic acids. As a result of condensations of diethyl ether of carbamoylmethylphosphonic acid with benzoic, cinnamic aldehydes, para-substituted benzaldehydes and furfural, the diethyl esters of α -carbamoyl- β -phenylvinylphosphonic acids were obtained. The addition of diethyl ether of carbamoylmethylphosphonic acids to the nitrile of acrylic acid and methyl ester of acrylic acid was realized. The reactions took place in the presence of sodium ethylate. They are accompanied by a significant exothermic effect and lead to the formation of the addition products with yields of 40-53%.

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USSR

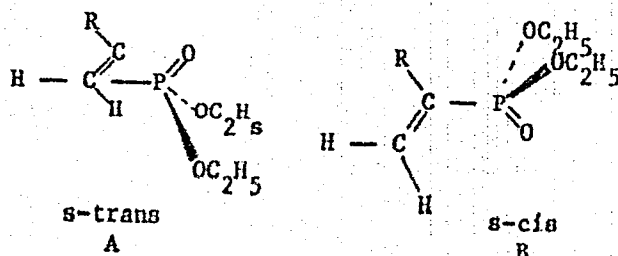
UDC 547.341

ISHMAYEVA, E. A., GAREYEV, R. D., YASTREBOVA, G. YE., PUDOVIK, A. N.

"Dipole Moments of Organophosphorus Compounds. IX. Vinylphosphonate and vinylphosphinoxides"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 73-76

Abstract: As a continuation of studies of organophosphorus compounds [E. A. Ishmayeva, et al., *Izv. AN SSSR, ser. khim.*, 2695, 1970] by the method of dipole moments to establish their spatial structure and electron density distribution, the dipole moments of the diethyl esters of α -methyl, α -cyano and α -bromovinylphosphonic acids were determined. The possible conformers of these compounds are represented as follows:



- 40 -

USSR

ISHMAYEVA, E. A., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 73-76

The ratio of the s-cis and s-trans-conformers in the α -substituted vinyl-phosphonates and their relative stability were determined by the electrostatic interaction of the dipoles. The presence of the rotational isomerism with respect to the C_{sp^2} -P bond was established in the diethyl ester and the acid dichloride of β -butoxyvinylphosphonic acid. The effective dipole moments of the C_{sp^2} -bonds in the oxides of vinylphosphines indicate conjugation of the vinyl and $P(O)R_2$ radicals.

2/2

USSR

UDC 547.558.1

PUDOVIK, A. N., and YASTREBOVA, G. YE., Kazan' State University
imeni V. I. Ulyanov-Lenin, Kazan, Ministry of Higher and Secondary
Specialized Education RSFSR

"Organophosphorus Compounds with Active Methylene Group"

Moscow, Uspekhi Khimii, Vol 39, No 7, Jul 70, pp 1190-1219

Abstract: A review is presented of the present state of the chemistry of organophosphorus compounds with active methylene groups such as esters and nitriles of phosphonacetic acids, phosphonacetone, and other compounds in which the methylene group is directly bound with a phosphoryl and any electronegative group. Compounds of this type are analogs of acetoacetic, malonic, cyanacetic and phenylacetic esters, the importance of which for theoretic and synthetic organic chemistry is well known. In the first part of the review, methods are described for synthesis of phosphorus-containing compounds with active methylene group, and in the second part their chemical properties, associated with the mobility of hydrogen atoms of the methylene group, are discussed. These include alkylation, acylation, addition, condensation, PO-olefination and other reactions such as

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PUDOVIK, A. N., et al., Moscow, Uspekhi Khimii, Vol 39, No 7, Jul 70, pp 1190-1219

bromination, chlorination and azo coupling.

In the discussion of synthesis of organophosphorus compounds with an active methylene group, details were presented on the following: derivatives of phosphorylated acetic acid and its nitrile; phosphorylated ketones; phosphorylated alkanes; phosphorylated alkenes; derivatives of substituted methylphosphonic acid containing aryl, carbocyclic, and heterocyclic radicals; esters of halogenomethyl-, aminomethyl-, oxymethyl- and alkozomethylphosphonic acids.

2/2

1/2 025
UNCLASSIFIED
TITLE--CONDENSATION AND ADDITION TO UNSATURATED COMPOUNDS OF
TETRAETHOXYDIPHOSPHONOMETHANE -U-
AUTHOR--(03)-PUDOVIK, A.N., YASTREBOVA, G.YE., PUDOVIK, O.A.
PROCESSING DATE--18SEP70
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 499
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CONDENSATION REACTION, ORGANIC PHOSPHORUS COMPOUND, ETHYL
ETHER, COMPLEX COMPOUND, ACRYLONITRILE, ACRYLATE, IR SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1985/1405
STEP NO--UR/0079/70/040/002/0499/0499
CIRC ACCESSION NO--AP0101495
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101495

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CH SUB2(P(O)(OET SUB2) SUB2 (I) HEATED 8 HR IN C SUB6 H SUB6 IN THE PRESENCE OF SATD. ETONA, ETOH WITH ELECTROPHILIC REAGENTS GAVE THE CORRESPONDING ADDUCTS. WITH CH SUB2:CHCN THE PRODUCT WAS 54PERCENT (NCCH SUB2 CH SUB2) SUB2 C(P(O)(OET) SUB2) SUB2, M. 78-9DEGREES; ME ACRYLATE GAVE ((ETO) SUB2 P(O)) SUB2:CHP(O)(OET) SUB2 GAVE 30PERCENT ((ETO) SUB2 P(O)) SUB2 CHCH SUB2 CH SUB2 P(O)(OET) SUB2, B SUB0.08 183-5DEGREES, 1.1805, 1.4540, WHILE BZH REQUIRED HEATING 22 HR IN XYLENE IN THE PRESENCE OF PIPERIDINE WITH CONTINUOUS REMOVAL OF H SUB2 O AND GAVE 10PERCENT ((ETO) SUB2 P(O)) SUB2 C:CHPH, B SUB0.5 186-8DEGREES, 1.1626, 1.4980. IR SPECTRAL DATA WERE GIVEN.

UNCLASSIFIED

USSR

UDC: 547.26'118

PUDOVIK, A. N., YASTREBOVA, G. YE., and PUDOVIK, O. A., Kazan' State University imeni V. I. Ulyanov Lenin, Kazan, Ministry of Higher and Secondary Specialized Education RSFSR

"Reactions of Tetraethoxydiphosphonmethane Condensation and Addition to Unsaturated Compounds"

Leningrad, Zhurnal Obschey Khimii, Vol 40, No 2, Feb 70, p 499

Abstract: It is shown that tetraethyl ester of methylenediphosphonic acid in the presence of a saturated alcoholic solution of sodium ethylate adds to the unsaturated electrophilic compounds nitriloacrylic acid, methyl acrylate and diethyl vinylphosphonate. The addition of tetraethoxydiphosphonmethane to nitriloacrylic acid gives bis(2-cyanoethyl-diethoxyphosphono)methane. In the case of methyl acrylate and diethyl vinylphosphonate 1-substituted bis(3,3-diethoxyphosphono)propanes are obtained. It was found that the condensation reaction of tetraethoxydiphosphonmethane with benzaldehyde proceeds under considerably more severe conditions than analogous condensation reactions of other organophosphorus compounds containing an active methylene group.

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USSR

UDC 546.623*131+546.35*185

YASTREBOVA, L. F., and POLINA, L. YU.

"Interaction of Aluminum Chloride with Rubidium and Cesium Pyrophosphates in Aqueous Solutions"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 2, 1972, pp 308-311

Abstract: The interaction is studied in the systems $AlCl_3-Rb_4P_2O_7-H_2O$ and $AlCl_3-Cs_4P_2O_7-H_2O$ at $25^\circ C$ with a constant concentration of $AlCl_3$ of 0.05 M by the methods of residual concentrations and measurement of pH of solutions. Depending on the initial ratio of concentrations of pyrophosphate and aluminum, the solid phase contains the medium pyrophosphate of aluminum $Al_4(P_2O_7)_3 \cdot 12 H_2O$, the binary salts $RbAlP_2O_7 \cdot 3H_2O$ and $CsAlP_2O_7 \cdot 4H_2O$, and the binary basic pyrophosphates $M_2AlOHP_2O_7 \cdot 2H_2O$ ($M = Rb$ or Cs). The compounds separated were studied by methods of derivatography and x-ray phase analysis; the presence of the hydroxyl group in complex salts of the composition $M_2AlOHP_2O_7 \cdot 2H_2O$ is confirmed by IR spectra.

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USSR

LEBEDEV, I.V., RUNKEVICHYUS, B.S., YASTREBOVA, YE.V. (Moscow)

"Investigation of the Boundary Layer by Means of a Laser"

Moscow, Zhurnal Prikladnoy Mekhanicheskoy i Tekhnicheskoy Fiziki, No 1, 1971,
pp 150-152

Abstract: The article deals with special features of velocity measurement in boundary layers by means of a laser Doppler shift velocity meter. The results are presented for boundary layers of streams rotating in two-dimensional vortex chambers. 3 figures, 5 bibliographic entries.

1/1

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USSR

UDC 669.721.372

BARANNIK, I. A., YASTREBOVA, Z. V., YEGOROV, A. P., ZHEUROV, V. V., CHUKAL'SKIY,
YE. N., BOGDANOV, A. P.

"Industrial Investigation of the Influence of Titanium Impurities on the
Electrolysis of Magnesium Chloride"

Tsvetnye Metally, No 8, 1971, pp 40-42

Abstract: Results are presented from a chemical analysis of the presence of titanium in the raw material and products of electrolysis. Material balances with respect to titanium are calculated for several commercial electrolyzers. It is demonstrated that regardless of the content of fluorine in the electrolyte, the decrease in the yield of magnesium per current may reach 5-20% when lower titanium chlorides are added to the electrolyzer. The influence of metallic titanium is significantly weaker. On the basis of an analysis of results of commercial studies, necessary measures to combat the harmful influence of titanium on electrolysis are discussed.

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USSR

UDC 547.26'118

PUDOVIK, A. N., BATYYEVA, E. S., and YASTREMSKAYA, N. V.

"Reactions of Dialkylphosphorous Acid Anilides With Amides of α , β -Unsaturated Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2631-2635

Abstract: It was shown that the dialkylphosphorous acid anilides react with phenylamides and N,N'-dialkylamides of α , β -unsaturated carboxylic acids forming O,O-dialkyl N-arylamido- β -(N-aryl- or N,N'-dialkyl)-carbamoylalkylphosphonates. O,O-dialkyl N-arylimido- β -N-arylcarbamoylalkylphosphonates undergo thermal cyclization yielding 2-alkoxy-1-aryl-2,5-dioxo-1,2-azaphospholanes.

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USSR

UDC 547.341 + 547.235

PUDOVIK, A. N., BATYYEVA, E. S., and YASTREMSKAYA, N. V., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"A New Synthetic Method for Substituted 1,2-Azaphospholanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 437-438

Abstract: 0,0-Diethyl amidophosphite reacts with the N-phenylamide of acrylic acid yielding 0,0-diethyl N-phenylamido- β -N-phenylcarbamoylethylphosphonate, m.p. 85°, which on distillation under high vacuum eliminates ethylaniline to form a cyclic product, 2-ethoxy-1-phenyl-2,5-dioxo-1,2-azaphospholane, b.p. 157-160°/0.007 mm n_D^{20} 1.5490, m.p. 71-73°.

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USSR

YASYUNAS, G.

"Estimate of Residual Term in a Multidimensional, Central Limit Theorem"

Lit. mat. sb. [Lithuanian Mathematics Collection], Vol 11, No 4, 1971,
pp 905-910, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972,
Abstract No 3 V26 by the author).

Translation: An estimate is produced of the residual term in a multidimensional central limit theorem for the sums of independent, random k-dimensional vectors, when the components have any distribution.

USSR

UDC 576.858.75

YATEL', T. P., Kiev Scientific Research Institute of Infectious Diseases

"Influenza Virus Variety A₂ (Hong Kong 68) and Its 'Novelty'"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 626-632

Abstract: The age distribution of influenza antibodies was studied with 325 sera collected in 1960-61 in Kiev from subjects 1-96 years old and preserved at minus 15 - minus 10 C until 1969. Antihemagglutinins to influenza virus A₂ (Hong Kong 68) and to the pandemic variety A₂/57 were found in sera of persons 70 years old and older. The highest percentage of sera (74 percent) containing antibodies to the virus A₂ (Hong Kong 68) and the maximum number of samples with titers of 1:80 - 1:640 to this virus were found in the age group 70-79 years. Similar maxima with respect to the virus variety A₂/57 were found in examining sera of persons in the age group of 80-90 years and older. The finding of antihemagglutinins to the present-day virus A₂ in the sera of elderly persons and the presence of maximum concentrations of antibodies to its varieties A₂/3 and A₂/1 in the sera of definite age groups make it possible to assume that the causative factors of the influenza pandemic of 1889-1890 and the epidemic of 1874-1875 were similar to the A₂ strains of the epidemic of 1968-69 (A₂/3) and the pandemic of 1957 (A₂/1),

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USSR

YATEL', T. P., Mikrobiologicheskii Zhurnal, Vol 33, No 5, Sep/Oct 71, pp 626-632

respectively. These results must be regarded as an indirect proof of the correctness of the hypothesis that influenza virus is not capable of infinite variations, but undergoes changes of a cyclic type.

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USSR

UDC 576.858.4

~~YATEL', T. P.~~ Kiev Scientific Research Institute of Infectious Diseases

"Study of the Characteristics of Influenza Agent Mutability According to Data of the Influenza Epidemic of 1967"

Kiev, Mikrobiologichnyy Zhurnal, Vol 32, No 1, Jan/Feb 70, pp 99-105

Abstract: Data from the influenza epidemic of 1967 was studied in an attempt to determine the mutability characteristics of the influenza agent, types A₂ and B, so that improvements could be made in epidemiological predictions for flu outbreaks. It was determined that influenza virus strains of the A₂/67 type are similar to the A₂ viruses from 1965 in biological properties and antigenic structure. The major group of strains of B/67 influenza virus differed in antigenic structure from the prototype strains, but they do not form a homogeneous group. The reason for the flare-up of mixed etiology in 1966/67 (B + A₂) was due to the appearance of a new antigenic mutant of the B type, and to lowering of immunity to the A₂/2 variant. The next B type influenza epidemic will strike in 1971 and the next A₂ type - in the autumn-winter period of 1969-70.

1/1

INVENTOR

SO: JPRS 54852
04 JAN 72 10 3/5

DEB

TASKS OF KAZAKH INVENTORS OUTLINED

Article by T. YATLUKOV, Chairman, Kazakh Council, All-Union Society of Inventors and Efficiency Experts; "Invention at the level of Current Requirements", Alma-Ata, Itardovye Khuzhystvo Kazakhstana, Russian, No 10, 1971, pp 23-27]

The inventors and efficiency experts in the country are faced with the task of creating and applying basically new labor tools, materials and technological processes matching the best world standards, and continuously improving the production process.

The people of Kazakhstan are making a great contribution to the solution of this problem. During 1965-1970 3.4 times more inventions were applied than during the previous five years; their effectiveness rose 1.73 times. Savings per rubles spent in the development of inventions and rationalizations equalled 14.70 rubles.

According to 1970 data savings equalled 2,071 rubles per applied rationalization suggestion and 22,400 rubles per applied invention.

Changes have occurred in patent work as well. Compared with 1965, in 1970 the number of requests for claimed inventions rose 4.8 times; the number of authorship certificates and positive solutions rose 6.3 times and that of inventions applied in production, 6.5 times.

Last year enterprises, scientific research and design organizations and individual inventors submitted a total of 1,516 statements for inventions to the Committee for Inventions and Discoveries of the USSR Council of Ministers. A total of 452 authorship certificates and positive decisions were issued. A total of 637 inventions were applied.

However, such results are far below the tremendous opportunities of the Republic. Kazakh inventors account for merely about 1 percent of the invention statements submitted to the Committee for Inventions and Discoveries, for 1.47 percent of the authorship certificates issued and

USSR

YATROV, S. H., SMIRNOV, A. P., et al

"'NEFT' Automated Information Retrieval System and Prospects for Its Development"

Moscow, Nauchno-Tekhnicheskaya Informatsiya - Seriya 2: Informatsionnyye Protsessy i Sistemy; June, 1971; pp 18-22

Abstract: The authors describe a document-based descriptor information retrieval system with associative address file organization which is used with a "Minsk-22" computer at the All-Union Scientific Research Institute for the Organization, Control, and Economy of the Oil and Gas Industry. The system is designed as a reference information service for engineers and researchers in the oil industry. Descriptions are given of the information retrieval language as well as the method used to construct it (including word lists for individual fields compiled by frequency and alphabetically by computer), the method used to index input documents, and the system of algorithms and programs that serve to organize the retrieval file and to search for and distribute information.

The materials presented in the article can be applied to the design and development of information retrieval systems in other fields of industry.

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1/2 013 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--GENERATING FUNCTIONAL METHOD AND VIRIAL EXPANSIONS IN NON
EQUILIBRIUM STATISTICAL MECHANICS -U-
AUTHOR-(02)-PELETMINSKIY, S.V., YATSENKO, A.A.
COUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2, PP
287-300
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--STATISTIC MECHANICS, FUNCTION THEORY, FUNCTIONAL EQUATION,
PARTICLE DISTRIBUTION, INTEGRAL EQUATION, DISTRIBUTION FUNCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0658 STEP NO--UR/0646/TO/003/002/0287/0300
CIRC ACCESSION NO--AP0129823
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129823

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NOTION IS INTRODUCED OF GENERATING FUNCTIONAL WHICH MAKES IT POSSIBLE TO OBTAIN ALL THE MANY PARTICLE DISTRIBUTION FUNCTIONS BY MEANS OF TAKING THE DERIVATIVES WITH RESPECT TO FUNCTIONAL ARGUMENT. FOR THE FUNCTIONAL INTRODUCED THE EQUATION IS FOUND, WHICH IS EQUIVALENT TO THAT FOR THE DENSITY MATRIX. IT IS SHOWN THAT THE STATIONARY SOLUTION OF THIS EQUATION, COMPLEMENTED BY THE PRINCIPLE OF THE SPATIAL CORRELATION RELAXATION (THE LATTER CAN BE FORMULATED SIMPLY IN TERMS OF GENERATING FUNCTIONAL), IS EQUIVALENT TO THE GIBBS DISTRIBUTION. THE INTEGRAL EQUATION IS DEDUCED FOR THE GENERATING FUNCTIONAL AT THE STAGE OF EVOLUTION WHEN THE STATE OF SYSTEM IS DESCRIBED BY THE DISTRIBUTION FUNCTION, AND A METHOD IS DEVELOPED FOR SOLVING THIS EQUATION IN THE FORM OF THE SERIES IN THE DENSITY POWERS.

FACILITY: FIZIKO-TEKHNICHESKIY INSTITUTE AKADEMII NAUK USSR.

UNCLASSIFIED

1/2 012
TITLE--PROTON MAGNETIC RESONANCE SPECTRA OF SOME CHALCONES AND THEIR
HETEROCYCLIC ANALOGS -U-
AUTHOR--(04)-TSUKERMAN, S.V., URLOV, V.D., YATSENKO, A.I., LAVRUSHIN, V.F.
COUNTRY OF INFO--USSR
SOURCE--TEOR. EKSP. KHIM. 1970. 6(1), 67-71
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--MAGNETIC RESONANCE, KETONE, HETEROCYCLIC BASE COMPOUND, FURAN,
THIOPHENE, ORGANOSELENIUM COMPOUND, SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0909
CIRC ACCESSION NO--AP0137937
STEP NO--UR/0379/70/006/001/0067/0071
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137937

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NMR SPECTRA OF 18 CHALCONE DERIVS.
RCOCH:CHR PRIME, WHERE ONE OF THE R AND R PRIME SUBSTITUENTS IS PH AND
THE OTHER IS ME, P, MEC SUB6 H SUB4, PHCH:CH, PENTAFLUOROPHENYL, AND
UNSUBSTITUTED OF 5, METHYLATED FURAN, THIOPHENE OR SELENOPHENE RING
ATTACHED IN THE 2 POSITION, WERE RECORDED IN CCL SUB4 AND INTERPRETED.
FACILITY: KHAR'KOV. GOSUNIV., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 669.15-194.2.017

BUNIN, K. P., MARTSINIV, B. F., REPINA, N. I., and YATSENKO, A. I.,
Institute of Ferrous Metallurgy

"Structure and Chemical Microheterogeneities of Cast Low-Carbon Iron Alloys
During the $\delta \rightarrow \alpha$ Transformation"

Kiev, Metallofizika, No 40, 1972, pp 90-95

Abstract: The structural features and chemical microheterogeneity were investigated for cast iron-carbon alloys with 0.05-0.15% C and alloyed with Si, Al, Cr, Cu, Mn, and Mo. The direct segregation of alloying elements into deltadendrites was shown by micro-x-ray spectral analysis. In the delta-gamma transformation process the growth of austenite occurs in the form of orderly oriented plates, similar to the transformation during heating. The formation of austenite is accompanied by depletion of Si, Al, and Mo and a weak enrichment of Mn, Cu, and Mn. In alloys being tested for a double delta-gamma-alpha transformation, orderly oriented blocks inside the ferrite appeared. 4 figures, 1 table, 27 bibliographic references.

1/1

USSR

UDC: 532.517.3:532.525.2

NAVOZNOV, O. I., PAVEL'YEV, A. A., YATSENKO, A. V., Moscow

"On the Transition to Turbulence in Submerged Jets and Wakes"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul./Aug 72, pp 148-154

Abstract: An experimental investigation was made of the transition to turbulent flow in axisymmetric submerged jets and wakes of helium and air for different velocity profiles in the initial cross section. The initial velocity profile in submerged jets was determined by the boundary layer on the ends of tubes of various lengths. In jets of helium and air in an accompanying airflow, the initial velocity profile was created by using a honeycomb with radially varying hydraulic drag. The results of the study agree in general with data in the literature, although certain previous conclusions were not confirmed. The authors thank V. M. Iyevlev for his assistance and discussion of the results.

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1/2 032 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THERMAL DECOMPOSITION OF THE DIMETHYLENE ETHER BOND IN POLYMERS --U--
AUTHOR--(051)NEVSKIY, V.M., YATSENKO, E.A., GRABARNIK, L.G., SALTIBAYEV,
D.K., BEYSEBAYEV, M.ZH.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAO. NAUK KAZ. SSR, SER. KHIM. 1970, 20(2), 78-80
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMAL DECOMPOSITION, METHYLENE, ETHER, POLYMERIZATION,
GLYCOL, PYROLYSIS, IR SPECTRUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0265 STEP NO--UR/0360/70/020/002/0078/0080
CIRC ACCESSION NO--AP0126037
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126037

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. OF P,HOCH SUB2 C SUB6
H SUB4 CH SUB2 CH IN BULK AT 140DEGREES IN THE PRESENCE OF P,MEC SUB6 H
SUB4 SO SUB3 H GAVE RCH SUB2 OCH SUB2 R PRIME (I). THE PYROLYSIS
PRODUCTS OF I OBTAINED IN VACUUM AT SMALLER THAN OR EQUAL TO 180DEGREES
CONTAINED POLYMERIC ALDEHYDES DUE TO HOMOLYTIC SPLITTING OF I RCH SUB2
AND R PRIME CH SUB2 O, WHICH INTERACT, GIVING R PRIME CHO AND RME. AT
260-360DEGREES, R PRIME CH SUB2 O IS DISPROPORTIONATED TO R PRIME CHO
AND R PRIME CH SUB2 OH, DETECTABLE BY IR SPECTROSCOPY. FACILITY:
INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

172 012 UNCLASSIFIED PROCESSING DATE 21 NOV 70
TITLE--DOUBLE IRON FREE TOROIDAL BETA SPECTROMETER FOR THE INVESTIGATION
OF SHORT LIVED ACTIVITIES -U-
AUTHOR--(05)-RAKIVNENKO, YU.N., ROMANIY, I.A., KLYUCHAREV, A.P., SKAKUN,
YE.A., YATSENKO, G.I.
COUNTRY OF INFO--USSR
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(4), 578-82
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--BETA SPECTROMETER, PARTICLE ACCELERATION, CESIUM ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0588 STEP NO--UR/0185/70/015/004/0578/0582
CIRC ACCESSION NO--AP0137673
UNCLASSIFIED

2/2 012
CIRC ACCESSION NO--AP0137673

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BETA SPECTROMETER IS DESCRIBED FOR USE IN STUDYING SHORT LIVED ACTIVITIES WHICH ARE FORMED FROM THE INTERACTION OF ACCELERATED PARTICLES WITH VARIOUS TARGETS. EACH LENS OF THE SPECTROMETER CONTAINS 100 COILS PREPD. FROM A PROFILED CU TUBE, THE SHAPE OF THEIR OPERATING SEGMENTS BEING DESIGNED SO THAT 2-MEV E CAN BE FOCUSED. THE APP. CAN MEASURE DOUBLE AND TRIPLE COINCIDENCES. THE TARGET IS CHANGED BY MEANS OF A VACUUM VALVE WITHOUT DESTROYING THE VACUUM IN THE APP. THE APP. WAS TESTED BY USING 10-MM PRIME137 CS SOURCES. FOR THESE SOURCES THE APRAMETERS OF THE APP. WERE DETD. TO BE AS FOLLOWS: TRANSMISSION OF 1 LENS 16PERCENT OF 4 PI, RESOLN. 1.0PERCENT. FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 669.715'725'721(088.8)

FRIDLYANDER, I. N., GULIN, A. N., SANDLER, V. S., YATSENKO, K. P., KOLESNIKOVA, V. I., POLYAKOV, YE. S., YUDIN, A. F.

"Deformable Alloy Based on Aluminum"

USSR Author's Certificate No 310946, filed 24 Mar 70, published 1 Oct 71 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 41627P)

Translation: A deformable alloy based on aluminum is proposed with the following composition: 15-40% Be, 1.5-8% Mg, 0.2-2.5% Li, and Al for the rest. In order to increase the corrosion strength, 0.1-0.6% Si can be introduced into the alloy. In order to increase the strength and plasticity, up to 0.2% Zr, Mn, Cr, and Ti introduced separately or jointly can be added. The proposed alloy permits variation of the properties within broad limits: σ_B 40-65 kg/mm², δ 9-12%, ψ 8-13% (the pressed ingots after quenching and aging). The alloy containing 24.4% Be, 4.3% Mg, 1.9% Li, and the rest Al after heat treatment has γ 2.3 g/cm³, E 13,650 kg/mm², σ_B 59.5 kg/mm², δ 11.3%, ψ 11.5%. The heat treatment conditions are as follows: quenching from 450°, 40 minutes and aging at 120°, 24 hours. The proposed alloy is obtained by the method of melting and casting in a vacuum and in an inert environment with subsequent deformations. Obtaining the intermediate products is possible by the powder metallurgy methods. The material can

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FRIDLYANDER, I. N., et al., USSR Author's Certificate No 310946, filed 24 Mar 70, published 1 Oct 71

be used in rigid structural elements in which the defining factors are a combination of lightness, high rigidity with high strength at operating temperatures to 120-150° and under short-term effects, to 400°.

2/2

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USSR

UDC 620.18:620.17:669.71'725

FRIDLYANDER, I. N., YATSENKO, K. P., NEKRASOVA, G. A., SANDLER, V. S., SEMENOVA, Z. G., and GULIN, A. N.

"Laws of Variation of the Structure and Properties of Beryllium-Aluminum Alloys"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 7, 1970, pp 50-55

Abstract: This article contains a discussion of the laws of variation of the structure and properties of beryllium-aluminum hypereutectic alloys. Various amounts of magnesium were added to the alloy to produce various changes. By generalizing the results of x-ray micrography a diagram is constructed for the decomposition of a solid solution of aluminum-beryllium alloy with 30% Be and 5% Mg. The variation in mechanical properties of the same alloy is plotted for aging at 200°C and at 250°C. The strength of aluminum-beryllium alloys as a function of the distance between the B-phase particles (the distance between the beryllium particles) is also plotted for Al-Be and Al-Be-Mg. The mechanisms of all these variations in structure and properties are discussed in detail.

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USSR

UDC: 8.74

KHALFEN, E. Sh., YATSENKO, K. S., ZAFERMAN, D. M.

"Predicting the Results of Myocardial Infarct Using Formulas Derived by a Dynamic Programming Method"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 279-282 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V704 by the authors)

Translation: As a generalized index for prediction, the paper introduces the sum of products of numerical estimates of symptom severity by coefficients. Finding these coefficients is reduced to a problem in finding an optimum trajectory by a dynamic programming method; the criterion of optimality is the minimum percentage of erroneous predictions. The results of clinical verification of the derived formulas show that the formulas are suitable for practical use.

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1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PROPERTIES OF ALKYL SULFATES BASED ON HYDROXIDATE ALCOHOLS -U-
AUTHOR--(031)-VOLKOVA, L.D., YATSENKO, L.V., BUKHSHTAB, Z.I.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (4), 53-5
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--FABRIC, DETERGENT, ALKYL RADICAL, SULFATE, FOAM

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/C07 STEP NO--UR/0318/70/000/004/0053/0055
CIRC ACCESSION NO--AP0140271
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO PREP. "HYDROOXIDATE ALCS.,"
PARAFFIN WAX IS OXIDIZED, THE PRODUCT EXT'D. WITH MEOH TO REMOVE
UNREACTED HYDROCARBONS, THE CARBOXYLIC ACIDS METHYLATED, AND THE ME
ESTERS HYDROGENATED. CRUDE OR PURIFIED ALKYL SULFATES PREPD. FROM THE
"HYDROOXIDATE ALCS." HAD HIGH FOAMING CAPACITY WITH DIST'D. H SUB2 O,
BUT A LOW ONE WITH HARD WATER, DUE TO THEIR CONTENT OF C SUB16 POSITIVE
ALKYL SULFATES, WHICH GAVE CA INSOL. SALTS. PURIFIED ALKYL SULFATES
GAVE SUITABLE PASTE AND POWD. DETERGENTS, ESP. WHEN MIXED WITH FOAMING
ADDITIVES, FOR BOTH COTTON AND WOOLEN FABRICS. FACILITY:
KHAR'KOV. POLITEKH. INST. IM. LENINA, KHARKOV, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPOSITION OF DIETHANOLAMIDES OF SYNTHETIC FATTY ACIDS -U-
AUTHOR-(03)-VOLKOVA, L.D., YATSENKO, L.V., PORATUYEVA, S.S.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (11), 37-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ETHANOL, AMIDE, FATTY ACID, DEMULSIFICATION, CHEMICAL
SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0808 STEP NO--UR/0318/70/000/001/0037/0039
CIRC ACCESSION NO--AP0119715
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119715

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO OBTAIN 92-3PERCENT
DIETHANOLAMIDE DEMULSIFIER FROM THE CONDENSATION OF ME ESTERS OF FATTY
ACIDS WITH DIETHANOLAMINE (I) AT 100DEGREES, 0.2-0.3PERCENT NA AS THE NA
ALCOHOLATE OF I WAS USED AS CATALYST. A 3PERCENT EXCESS OF I MUST BE
USED. NAOHE AS CATALYST GAVE A HIGHER YIELD, BUT THE PURITY OF THE
DIETHANOLAMIDES IMPROVED DURING STORAGE.

UNCLASSIFIED

USSR

UDC 615.849.112.015.45:[612.13:612.75

YATSENKO, M. I., Makeyevsk Physiotherapeutic Hospital imeni Kirov, and Chair of Human and Animal Physiology, Odessa University imeni I. I. Mechnikov

"Alteration of Temperature and Circulation Rate in a Joint Under the Influence of a High-Frequency Electromagnetic Field (Microwaves)"

Moscow, Voprosy Kurortologii, Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 5, Sep/Oct 70, pp 420-423

Abstract: The rabbit knee joint and adjacent skin were irradiated with 40-volt microwave radiation for 20 minutes; local temperature rose by 4-6°C. When paraffin was applied to the knee joint (temperature, 55°C; duration of irradiation, 20 minutes), the temperature between the joint and the skin rose 3-4°C. More intense radiation doses gave rise to a greater increase in temperature. The thermal component of the microwaves is apparently the most effective component of this type of radiation. Blood circulation in the knee was significantly enhanced by irradiation, as indicated by the increased blood flow through the femoral vein (mean increase, from 3.8 to 4.6 ml) and by the accelerated appearance of radioactive phosphorus (from $\text{Na}_2\text{HPO}_4^{32}\text{O}_4$) in this blood (mean, from 1.31 to 0.78 sec). The results obtained are in agreement with those of other authors.

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YATSENKO, N.G.

5925 5908
C-73

VI-8. OBTAINING EPITAXIAL FILMS OF INP ON GASE SUBSTRATES

Article by Y.A. Ugar, V. S. Kovalchik, N. S. Maslov, N. G. Yatsenko, Voronezh, 1972, 111. Sbornik po Prikladnoi Khimii i Sintezu Polimerov, N. G. Yatsenko, I. Plenn, Russian, 12-17 June, 1972, p 90.
Epitaxial films of InP were obtained on selenide arsenide substrates oriented along the (111) and (100) planes.

The growth was realized by the method of transport chemical reactions in an open system using In, PCl₃ and H₂ as the gas carrier.

A study was made of the effect of the substrate temperature and the indium source temperature, the phosphorus trichloride velocity and the spacing between the indium source and the substrate on the structure, the growth rate and the electrophysical properties of the films.

The structure of the films was investigated by the electron diffraction and x-ray diffraction methods and the method of optical microscopy.

It was discovered that at substrate temperatures of 400-500°C polycrystalline films are grown, at 500-600°C textured films, and at 600-750°C mono-crystalline films.

USSR

UDC 621.382.002(085.3)

YATSENKO, N.G., SHAPESHNIK, K.I., NAYDEROVA, T.D., ZAVAS'KIY, YU.P.

"Control And Conditions Of Selective Etching Of Silicon By Anhydrous Hydrogen Chloride"

Elektron. tekhnika. Nauch.-tekhn.ab. Upr.kachestvom i standartiz (Electronics Technology. Scientific-Technical Collection. Quality Control And Standards), 1971, Issue 1(7), pp 91-97 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10P451)

Translation: The dependence of the rate of etching of Si by anhydrous HCl at temperatures of 1100--1280° C on the basic thermodynamic and kinetic parameters is obtained. A course of reactions in the diffusion region is possible at temperatures of 1190--1280° C and in the kinetic at 1100--1160° C. The apparent energy activation of the surface of reaction computed from the relation $\lg V = f(1/T)$ is equal to 85 kcal/mole. During selective etching thermal SiO₂ is the most resistant to the effect of the gaseous medium. The surface of Si after processing with anhydrous HCl has a high degree of cleanliness and perfection. The optimum regime of etching Si is: temperature 1170° C, concentration of HCl in gas carrier (H₂) 0.019 percent, speed of gas flow in chamber 4 l/min. 7 ill. 2 ref. I.M.

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Acc. Nr.

AP0105553

Abstracting Service:

CHEMICAL ABST.

C-70

Ref. Code

UR 0449

126935p Infrared reflection and transmission spectra of boron. Averbakh, E. M.; Ugai, Ya. A.; Yatsenko, O. B.; Solov'ev, N. E. (Voronezh. Gos. Univ., Voronezh, USSR). *Fiz. Tekh. Poluprov.* 1979, 4(3), 623-5 (Russ). The ir reflection and transmission spectra of B in the β -rhombohedral form were investigated in the range 1-15 μ . Instrumentation and sample prepn. are described for reflectance and transmission studies. Spectra are presented. Transmittance of B single crystals decreases sharply at wavelengths $>4.5 \mu$ and increases beyond 13 μ . Reflectance and transmission spectra show considerable agreement. A band at 8.15 μ is assigned as a result of crystal lattice vibration. Bands at 7.2 and 2.7 μ are the result of crystal impurities. Edward F. King

ELB

REEL/FRAME
19880568

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USSR

UDC 669.14.017.3:541.12.017

BUNIN, K. P., Corresponding Member of the Academy of Sciences Ukrainian SSR, MARTSYNIV, B. F., RYEPINA, N. I., and YATSENKO, O. I., Institute of Ferrous Metallurgy

"Peritectic Reaction in Fe-C-Al Alloys"

Kiev, Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A. Fizyko-Tekhnichni ta Matematychni Nauki, No 12, Dec 71, pp 1119-1121

Abstract: The article describes results of a study of structural and concentration changes during peritectic transformation in Fe-C-Al alloys (0.3-0.7 percent C, 1.6-3.5 percent Al). The alloys were smelted, then 10-gram batches remelted and superheated to 1580-1600° C and quenched during controlled cooling in the crystallization interval or below. The structure was analyzed microscopically, the aluminum distribution by the microroentgen spectral method. The formation of austenite was observed during the cooling. A γ -solid solution appears at the liquid-delta phase interface in the form of thin borders around the branches of primary δ -dendrites. Crystallization

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USSR .

BUNIN, K. P., et al., Dopovidi Akademiyi Nauk Ukrayins'koyi RSR, Seriya A. Fizyko-Tekhnichni ta Matematychni Nauki, No 12, Dec 71, pp 1119-1121

of the alloys by $L \rightarrow \delta$ and $L + \delta \rightarrow \gamma$ reactions is accompanied by interphase partition of aluminum, leading to the formation of intracrystalline microheterogeneity, which can be classified as inverse dendritic segregation.

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USSR

UDC 541.122.2

ZIL'BERGLETT, B. I., and YATSENKO, S. P., Institute of Chemistry, Ural Branch of the Academy of Sciences USSR

"Reactive Diffusion in Liquid Alloys Al-Ga"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 5, May 70, pp 1303-1307

Abstract: An improved method is described for the study of reactive diffusion in liquid metallic alloys which eliminates the effect of capillary walls on transport processes in the liquid alloy. By means of this method the reactive diffusion in the liquid system Al-Ga was investigated and it was determined that a close relationship exists between the determined value of the coefficient of heterodiffusion and the diameter of the capillary. A method is proposed for the determination of partial coefficients of component diffusion from the results obtained in studying heterodiffusion. The temperature function of partial coefficient of diffusion agrees with the conclusions of the fluctuation theory of self-diffusion in liquid metals.

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- 3 -

Physical Properties

USSR

UDC 541:12.012.5

~~YATSENKO, S. P.~~ and ANIKIN, YU. A., Ural Scientific Research Chemical Institute, Sverdlovsk

"Solubility of Group-Five Metals in Molten Gallium"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 57-62

Abstract: Inasmuch as liquidus curves for gallium-metal systems have not been established or need refinement, the authors made a study of the solubility of Sr, Y, Zr, Nb, Mo, Pd, Cd, Ru, Rh, Sb, and Te in molten Ga in relation to temperature at concentrations of these metals not greater than 2 at %. A description is given of the procedure and apparatus used to determine liquidus lines, and attention is given to the chemical thermodynamics involved in determining solubility within Ga-Metal binary systems.

In plotting solubility curves for the studied metal combinations at 773°K, melting points and heat of sublimation were compared with the group number in the periodic table and it was observed that there was some disparity in the position of a solubility curve with given thermodynamic properties. Antimony and tellurium did not conform to the relationship. The plotted data also revealed the lack of a correlation between the solubility of metals in gallium and the atomic size factors. It was deemed probable that electron interaction in the molten state

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YATSENKO, S. P., and ANIKIN, YU. A., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 57-62

suppressed the size factor.

In passing from strontium and yttrium to niobium, solubility in gallium is reduced, whereas solubility increases to large values for adjacent indium in the periodic system and is sharply diminished for antimony and tellurium. This conformity was not reflected by molybdenum, whose solubility in gallium is significantly greater than niobium and ruthenium.

Literature data on the solubility of metals of the fourth group in cadmium, mercury, bismuth, and plutonium show a distinct correlation between solubility curves for metals in the fourth and fifth groups in molten gallium. Data collected in the current tests on the solubility of metals in the fifth group in molten gallium make it possible to assume that such characteristics as melting point, heat of melting, heat of sublimation, size factor, partial molar entropy, and heat of mixing are all important but do not complete the total list of properties affecting solubility. Thus, one must also consider the electron structure and the charge of the atomic nucleus, on which depend all the other properties of both metals and their solutions.

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Miscellaneous

USSR

KONONENKO, V. G., YATSENKO, S. V.

"Impact Cutting of Hot Metal on Continuous Casting Installations"

Moscow, Stal', No 3, Mar 72, pp 220-222.

Abstract: A method has been developed at the Khar'kov Aviation Institute for rapid cutting of continuous ingots by synchronous impact of blades on both sides resulting from ignition of a fuel mixture in a cylinder. Impact cutting has a number of important advantages over ordinary flame cutting: there is no waste, the ingot structure is not disrupted, cutting time is not over 0.01 sec, allowing the ingot to be cut right in the production line into billets of very short lengths. Impact cutting machines can be installed on existing continuous steel casting units without redesign with minimum capital expenditures. No additional foundation is required, since the cutting forces are not transmitted to the structural elements of the casting machine.

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USSR

YATSENKO, V. G., and BALKOVA, Ye. N., All-Russian Scientific Research
Institute of Sugar Beets and Sugar

"Duration of the Toxic Action of Herbicides in Sugar-Beet Fields"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 50-52

Abstract: Herbicides should exert a phytotoxic action on weeds during the vegetation period of the plant that they are supposed to protect and not harm plants grown subsequently in the course of crop rotation - i.e., they should be detoxified in the soil before the next crop can be damaged. The degree of detoxification of eptam (I), tillam (II), and dichloralurea (III) applied before the planting of sugar beet seed plants on chernozem fertilized with $N_{90}P_{120}K_{90}$ was determined by growing oats as a test plant of samples of soil taken from depths of 0-5, 5-10, and 10-20 cm. in the rosette, budding, and flowering stages of the sugar beet plants and also after harvesting of the sugar beet seedlings. Upon harvesting I, II, and III applied in the amount of 4-6, 6, and 10 kg/ha were completely inactivated for all practical purposes, while I applied in the amount of 8 kg/ha retained a residual toxicity that was presumably preserved in the following year. From the standpoint of effective control of weeds without damage to subsequent crops, I applied in the amount of 1/2

USSR

YATSENKO, V. G. and BALIOVA, Ye. N., Khimiya v Sel'skom Khozyaystve, Vol 9, No 7, 1971, pp 50-52

6 kg/ha was best among the herbicides tested, because it retained a high herbicidal activity during the growing season and was inactivated at the time of harvesting.

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USSR

UDC 632.954

YATSENKO, V. G., KOMISSAROV, L. M., All-Union Scientific Research
Institute of Sugar Beets

"Infiltration and Inactivation in the Soil of Herbicides Applied by
the Strip Method"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 9 (83), Sep 70,
pp 48-49

Abstract: Infiltration and inactivation of eptam, sodium trichloro-
acetate and dichloralurea were studied after application of the herbi-
cides in strips 18-20 cm wide. Continuous application was also
used for comparison. It was found that eptam is absorbed by the soil
and therefore migrates only slightly with respect to the soil profile.
Sodium trichloroacetate is washed out of the upper layers of the
soil into the lower layers, which explains its weak effect on weeds
in years with heavy rainfall. Dichloralurea does not migrate through
the soil to any great extent and is retained chiefly in the upper
layer.

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USSR

UDC 539.43

YATSENKO, V. K., KORENEVSKIY, YE. YA., and IVSHCHENKO, L. I., Zaporozh'ye
Machine-Building Institute imeni V. Ya. Chubar'

"The Influence of Machining Methods Upon the Sensitivity of Steel EI961 to
Stress Concentration at Alternating Loads"

Kiev, Problemy Prochnosti, No 2, Feb 72, pp 107-110

Abstract: With the aim of increasing the reliability and longevity of machine parts operating under heavy loads, research was conducted to determine the influence of machining methods (Fine turning, grinding, polishing, rolling by rollers, and diamond smoothing) upon the resistance of steel EI961 (1Kh12N2VMF) to fatigue failure in the presence of stress concentrators made in the form of fillets, grooves, and radial apertures. It was established that the most effective methods of machining machine parts, which neutralize the unfavorable influence stress concentrations upon the durability of the material are diamond smoothing and rolling by rollers. Three tables, 2 figures, 2 references.

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USSR

UDC 621.787.4:621.921.34:539.432

YATSENIKO, V. K., KORENEVSKIY, YE. YA., and BONDAR', M. P. Machine-Building
Institute imeni V. Ya. Chubar'

"The Influence of Diamond Smoothing Upon the Surface Quality and Fatigue
Strength of Steel EI961"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 105-108

Abstract: The article deals with the influence of grinding, polishing and diamond smoothing upon the surface quality and fatigue strength of steel EI961 (Kh12N2VMF). It is shown that diamond smoothing is accompanied by the formation of a high degree of surface finish and a favorable microrelief, increases the depth and degree of cold hardening, and imparts compressive residual stresses to the surface layer. This considerably increases the fatigue strength of the material in comparison to that obtained by grinding and polishing. The obtained research results demonstrate the expediency of using diamond smoothing for the final machining of shafts made of steel EI961 after grinding. It is thereby possible to replace labor-intensive grinding and polishing without diminishing the necessary operational properties of the parts.

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USSR

UDC 629.7.036.3:621

KORENEVSKIY, Ye. Ya., and YATSENKO, V. K., Zaporozh'ye

"Effect of Basic Operations of Machining a Compressor Vane Fin Made of 1Kh17N2 Steel on Surface Quality and Durability"

Kiev, Problemy Prochnosti, No 3, March 1971, pp 15-20

Abstract: This paper contains the results of a study of the surface quality and durability of operating compressor vanes made of steel 1Kh17N2 after the basic operations of machining the fin: milling, belt grinding, final manual polishing, polishing and vibration tumbling. The finish class, surface microhardness, depth of work-hardening and degree of work-hardening were determined after each operation. The data demonstrated that the investigated machining techniques are accompanied by the formation of surfaces of different quality -- the best with vibration tumbling and the least stable in the case of manual mechanical polishing. Extensive fatigue testing of several specimens of the vanes under overloads provided results which were processed by statistical methods with the application of linear regression and correlation analyses. Complete fatigue diagrams were plotted, and empirical relations were derived from them.

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USSR

KORENEVSKIY, Ye. Ya., and YATSENKO, V. K., Problemy Prochnosti, No 3, March 1971, pp 15-20

From the study it can be concluded that the preliminary operations of milling and grinding greatly reduce the resistance of the steel to fatigue breakdown in the case of cyclic overstressing; polishing sharply increases this index. Vibration tumbling not only increases durability but also significantly lowers the scattering of the service life.

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USSR

UDC: 621.51-226.2:620.169.1:519.24

KORENEVSKIY, Ye. Ya., YATSENKO, V. K., Zaporozh'ye

"Selection of An Effective Vibration Tumbling Mode For Hardening of Parts of VT8 Titanium Alloy"

Kiev, Problemy Prochnosti, No 11, 1970, pp 106-110

Abstract: The influence of the duration of vibration tumbling on the roughness, work hardening, residual stresses, endurance and damping properties of parts made of VT8 titanium alloy is studied. It is established that a change in the physical and mechanical properties of the surface layer significantly influences the logarithmic decrement of oscillations.

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1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MATERIALS FOR THE STUDY OF CHORDOMA INNERVATION -U-
AUTHOR--(03)-SVIGUN, V.S., KOLOMIYTSEV, A.K., YATSENKO, V.P.
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 57-60
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, TUMOR, SURGERY, NERVOUS SYSTEM, ANATOMY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0733

STEP NO--UR/9115/70/000/005/0057/0060

CIRC ACCESSION NO--AP0131328

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0131328

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. WITH AID OF DIVERSE METHODS OF IMPREGNATION AND STAINING THE AUTHORS HAVE STUDIED THE SACROCOCCYGEAL CHORDOMAS AND THE ADJACENT TISSUES OPERATIVELY ABLATED IN 10 PATIENTS. IN ALL THE CASES, A CLOSE CORRELATION WAS FOUND BETWEEN THE CONSTITUTING COMPONENTS OF THE TUMOR AND THE NEWLY FORMED NERVE ELEMENTS. THESE WERE ESPECIALLY ABUNDANT IN THE CAPSULE SURROUNDING THE CHORDOMA WHERE, PARALLELLY WITH NERVE TRUNKLETS AND SINGLY DISPOSED AXONS, NUMEROUS PRIMITIVELY ARRANGED TERMINAL DEVICES OF THE TYPE OF LOOPS, BUTTONS OR NETWORK, AS WELL AS MORE INTRICATELY ARRANGED CLUSTER OR TENDRIL LIKE ENDINGS HAVE BEEN DETECTED. THE THICKNESS OF CHORDOMA WAS FOUND TO BE PENETRATED ALONG THE CONNECTIVE TISSUE STRATA BY NUMEROUS NERVE FIBERS LYING ISOLATELY OR FORMING BUNDLES DISPOSED AMONG CELLS OF THE TUMOR. THE TUMOR NODES CONTAIN TWO TYPES OF NERVE ENDINGS, SOME OF THEM ARE REPRESENTED BY LOCALIZED ARBORIZATIONS, THE OTHER BY PRIMITIVE DEVICES OF THE TYPE OF LOOPS, BUTTONS OR SMALL BULGINGS, IMMEDIATELY CONTACTING WITH CELLS OF THE CHORDOMA.

FACILITY: KIEV. INSTITUTA
EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AND KAFEDRY GISTOLOGII I
EMBRIOLOGII KIEV, MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CONDITIONS OF STRENGTH FOR ORTHOTROPIC MATERIALS WITH A COMPLEX
STATE OF ELASTICITY -U-
AUTHOR--YATSENKO, V.P.
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A FIZIKO
TEKHNICKNI I MATEMATICHNI NAUKI, VOL. 32, FEB. 1970, P. 174, 175
DATE PUBLISHED--FEB70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--ELASTICITY, ANISOTROPIC MEDIUM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/2029 STEP NO--UR/0441/70/032/000/0174/0175
CIRC ACCESSION NO--ATO112984
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0112984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BRIEF CONSIDERATION OF THE STABILITY OF ORTHOTROPIC MATERIALS WHOSE POINT ELASTIC STATES COMPLY WITH THE THEORY OF ELASTICITY OF ANISOTROPIC BODIES. IT IS ALSO ASSUMED THAT THESE MATERIALS UNDER LOADS ARE SUBJECT TO THE HOOKE LAW UP TO THE POINT OF BREAKDOWN. BOUNDARY VALUES OF THE ELASTIC POTENTIAL OF THESE MATERIALS ARE GIVEN IN THE FORM OF TENSORS FOR A SET OF EIGHT OCTANTS IN THREE LOCAL SYMMETRY PLANES. FACILITY: KIEVSKII INZHENERNO-BUDIVEL'NII INSTITUT, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 621.372.061

CHALYV, V. D., YATSENKO, Yu. I.

"Selecting Optimal Parameters of Some Transistor Circuits"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radio-electronic Equipment, No 1), Moscow, 1970, pp 65-71 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A115)

Translation: This article contains an investigation of application of the methods of factor experimentation based on regression analysis for optimization of multidimensional linear and nonlinear stationary circuits. The procedure permits us to obtain a system of equations describing the optimal conditions of the circuit and nomograms for selecting the optimal parameters. There are two illustrations, two tables and a two-entry bibliography.

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USSR

UDC 541.183

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"Sorption of Uranium From Aqueous Solutions by Mineral Sorbents and by
Carbon Modified with Titanium Dioxide"

Minsk, Vestsi Akademii BSSR, Seriya Khimicheskikh Navuk, No 3, 1973, pp 65-68

Abstract: A series of adsorbents modified by deposition of a thin layer of titanium dioxide on their surface was studied with the goal of improving their effectiveness in extracting UO_2^{+} from aqueous solutions. Experimental data showed that the effectiveness of carbon, aluminum oxide and silica gel was improved considerably after TiO_2 was deposited on their porous surface.

Adding a complexing agent to the solution -- a carboxylic acid for example -- improved the extracting ability even more. This was especially noted in case of aluminum oxide modified with TiO_2 in combination with benzoic acid added to the solution; a four-fold increase in the effectiveness of extraction was achieved.

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1/3 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF TRACES OF PHOSPHATE BASED ON THE CATALYZED
REDUCTION OF MOLYBDATE TO MOLYBDENUM BLUE BY ASCORBIC ACID, PHOTOMETRIC
AUTHOR--(03)-YATSIMIRSKIY, K.B., ROSLOVSKIY, SH.K., KRISS, YE.YE.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 324-31
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TRACE ANALYSIS, MOLYBDATE, ASCORBIC ACID, CATALYST ACTIVITY,
CHEMICAL REDUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1877 STEP NO--UR/0075/70/025/002/0324/0331
CIRC ACCESSION NO--AP0118841
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2/3 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118841

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE KINETICS OF THE CATALYTIC REON. OF MOLYBDATE TO MOLYBDENUM BLUE BY ASCORBIC ACID, WHICH CAN BE USED FOR P DETN., WAS STUDIED. THE REACTION PROCEEDS IN 3 STAGES WITH DIFFERENT REACTION RATES. THE 1ST STAGE CAN BE REPRESENTED BY THE REACTION $\text{MPA} + \text{ASC} \rightarrow \text{MPB SUB1} + \text{QA}$, WHERE MPA IS MOLYBDOPHOSPHORIC ACID, ASC IS ASCORBIC ACID, MPB SUB1 IS MOLYBDOPHOSPHATE BLUE, QA IS THE PRODUCTS OF ASCORBIC ACID OXIDN. MPB SUB1 CONCEN. IS PROPORTIONAL TO THE CONCEN. OF THE PHOSPHATE IONS IN THE BEGINNING OF THE REACTION. IN THE 2ND STAGE MPB SUB1 IS CONVERTED TO A CATALYTICALLY ACTIVE FORM MPB SUB2 BY INTRAMOL. REARRANGING OR BY AN INTERACTION WITH THE RESIDUAL MO(VI) OR WITH ONE OF THE QA. THE EQUATION CAN BE REPRESENTED AS $\text{MPB SUB1} + \text{QA} \rightarrow \text{MPB SUB2}$. IN THE 3RD STAGE A 3RD MOLYBDENUM BLUE TYPE MB IS FORMED BY THE REACTION OF POLYMOLYBDATE WITH ASCORBIC ACID CATALYZED BY MPB SUB2: $\text{MO(VI)} + \text{ASC} \rightarrow \text{PRIMEMPB SUB2} + \text{QA}$. ALL 3 TYPES CAN BE USED FOR P DETN. BY MEASURING OF THE RATE OF THE 1ST REACTION; BY MEASURING THE ABSORBANCE; BY MEASURING THE TIME OF THE INDUCTION PERIOD; BY MEASURING THE RATE OF THE 3RD REACTION. THE KINETIC EQUATION OF THE 3RD REACTION STAGE HAS $\frac{d(\text{NA})}{dt} = \text{XC SUBMO(VI)} \cdot \text{C SUBASC} \cdot \text{C SUBP}$, WHERE X IS THE SLOPE OF THE LINE PROPORTIONAL TO THE REACTION RATE. IT ALSO DEPENDS LINEARLY ON THE CONCEN. OF MOLYBDATE, ASCORBIC ACID AND H SUBO PO SUB4. THE REACTION RATE HAS AN OPTIMUM IN THE PH RANGE 1.35-1.45; SULFATE IONS OR TEMP. DO NOT AFFECT THE RATE OF REACTION.

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PROCESSING DATE--13NOV70

3/3 012

CIRC ACCESSION NO--AP0118841

ABSTRACT/EXTRACT--OPTIMUM CONDITIONS FOR DETN. OF TRACE AMTS. OF P BY THE
KINETIC METHOD ARE PH 1.4, 25DEGREES, MOLYBDATE AND ASCORBIC ACID CONC.
1 TIMES 10 PRIME NEGATIVE2 M. THE SENSITIVITY OF THE DETN. BY THE 3RD
STAGE IS 1 TIMES 10 PRIME NEGATIVE2 MUG P-ML. FACILITY: INST.
GEN. INORG. CHEM., KIEV, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--KINETIC METHOD FOR DETERMINING TRACE AMOUNTS OF OSMIUM BY USING
IODIDE OXIDATION BY BROMATE IN AN ACID MEDIUM -U-
AUTHOR--(03)-ALEKSEYEVA, I.I., SMIRNOVA, I.B., YATSIMIRSKIY, K.B.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 539-43
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--TRACE ANALYSIS, IODIDE, OXIDATION, BROMATE, OSMIUM, METAL
CHEMICAL ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0464 STEP NO--UR/0075/70/025/003/0539/0543
CIRC ACCESSION NO--AP0126216
UNCLASSIFIED

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PROCESSING DATE--20NOV70

2/2 015

CIRC ACCESSION NO--AP0126216

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HIGHLY SENSITIVE METHOD WAS DEVELOPED FOR OS (VIII) DETN. ON THE BASIS OF ITS CATALYTIC ACTION IN THE REACTION BETWEEN I PRIME NEGATIVE AND BRO SUB3 PRIME NEGATIVE IN AN ACID MEDIUM. OS (VIII) REACTS WITH I PRIME NEGATIVE TO FORM AN ACTIVE COMPLEX, WHICH LATER REACTS WITH BRO SUB3 PRIME NEGATIVE. MAX. CATALYTIC ACTION OF OS EXISTS AT PH 2.8-4.5. CU, CO, NI, FE, AND AL, 100 FOLD AMTS., DO NOT INTERFERE IN OS DETN. FACILITY: MOSCOW INST. FINE CHEM. TECHNOL., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--DETERMINATION OF PALLADIUM BY THE CATALYTIC REACTION BETWEEN
STANNOUS CHLORIDE AND ARSENIOS ACID -U-
AUTHOR--(03)--FEDOROVA, T.I., SHVEDOVA, L.V., YATSIMIRSKIY, K.B.
COUNTRY OF INFO--USSR
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 307-11
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PALLADIUM, CHEMICAL REACTION RATE, CHEMICAL ANALYSIS, TIN
CHLORIDE, ARSENIC COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1994/1919 STEP NO--UR/0075/70/025/002/0307/0311
CIRC ACCESSION NO--AP0115733
UNCLASSIFIED